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REMARKS

In the Office Action, the Examiner reviewed claims 1-10 of the above-identified US Patent Application, with the result that Applicants' drawings corrections proposed in their Response filed May 17, 2002, were approved, claim 1 was objected to in view of a clerical error, all of the claims were rejected under 35 USC §102 on the basis of a public use/sale bar, claims 1-4, 6, 7, 9 and 10 were rejected under 35 USC §102 in view of U.S. Patent No. 4,988,844 to Dietrich et al. (Dietrich), and claims 5 and 8 were rejected under 35 USC §103 in view of Dietrich et al.

In response, Applicants have amended claim 1 to overcome the claim objection as set forth above. Applicants believe that the above amendment does not present new matter. Applicants further believe that the amendment strictly complies with 37 CFR §1.116(a) as being limited to reducing and simplifying the issues remaining in the examination of Applicants' application, namely, complying with suggestions made by the Examiner to amend the claims in a manner that overcomes a claim objection. Consequently, Applicants believe that the above amendment does not raise new issues that would require further consideration and/or search by the Examiner, and places the claims in better condition for appeal. MPEP §714.13.

Favorable reconsideration and allowance of claims 1-10 are respectfully requested in view of the above amendments and the following remarks.

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Approved Drawing Amendments

Applicants are filing a separate letter to the Official Draftsman, by which formal corrected Figures 10 through 12 are being submitted in accordance with the present Office Action. The separate letter to the Official Draftsman is being deposited with the United States Postal Service as first class mail.

Rejections under 35 USC §§102 and 103 in view of Dietrich

Independent claims 1 and 6 and their dependent claims 2-4, 7, 9 and 10 were rejected under 35 USC §102(b) as being anticipated by Dietrich, and dependent claims 5 and 8 were rejected under 35 USC §103 as being obvious in view of Dietrich.

Applicants' independent claim 1 requires:

a coating material [26] surrounded by and contained within the crucible [56], the coating material [26] having a surface exposed by the crucible [56];

an electron beam gun [30] projecting an electron beam [28] onto the surface of the coating material [26], the electron beam [28] defining a beam pattern having a higher intensity *at an interface* of the surface of the coating material [26] with the crucible [56] than at a central region of the surface of the coating material [26].
(Emphasis added.)

Applicants' independent claim 6 requires:

a coating material [26] surrounded by and contained within

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the crucible [56], the coating material [26] having a surface exposed by the crucible [56];

an electron beam gun [30] projecting an electron beam [28] *onto* the surface of the coating material [26] *and a contiguous surface portion [84] of the crucible [56]*, the electron beam [28] forming a beam pattern with a perimeter *on the contiguous surface portion [84] of the crucible [56]*, the electron beam gun [30] melting the surface of the coating material [26] and evaporating molten coating material [26], the electron beam [28] having a higher intensity *at an interface* of the surface of the coating material [26] with the contiguous surface portion [84] of the crucible [56] than at a central region of the surface of the coating material [26], the electron beam [28] being incident on the surface of the coating material [26] at an oblique angle so as to establish relative to the electron beam gun [30] a proximal point [100] and an oppositely-disposed distal point [101] at the perimeter of the beam pattern, the electron beam [28] having a lower intensity at the proximal and distal points [100,101] than elsewhere at the perimeter of the beam pattern. (Emphasis added.)

Under the §102 rejection, the Examiner explained that Dietrich discloses an electron beam melting furnace equipped with a crucible 6 containing a bath 8 of molten evaporate, electron beams 17 and 18 generated by electron beam guns 10 and 11, and

Each electron beam gun having a higher intensity at a location between the surface of the coating material and the crucible than at a central region of the surface of the coating material - Here, Dietrich et al teaches that a combination of two electron beam guns can produce the claimed intensity profile in the x direction as shown in the graph of Figure 3 (38). However, from the arcuate (26,27, Fig. 1) projection of each electron beam as shown and described (column 3, lines 38-40, 10-11, 25-26), Dietrich et al teaches that each electron beam produces the claimed intensity profile in the y direction perpendicular direction, into/out of the plane of Figure 1) as shown in the graph of Figure 3 (38). (Original emphasis.)

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Applicants wish to comment that Dietrich does not disclose or suggest that the electron beams 17 and 18 generated by either of Dietrich's electron beam guns 10 and 11 have a higher intensity *at the interface* of the surface 9 of the molten bath 8 with the crucible 6 than at a central region of the surface 9. Instead, *Dietrich discloses that the regions of higher intensity (26, 27) are located entirely on the surface 9 of the molten bath 8, as clearly shown in Dietrich's Figure 3.*

The Examiner went on to say that

Dietrich et al teaches the capability (column 2, lines 53-58; "despite the force urging them radially toward the outside"; column 3, lines 25-30) of projecting each electron beam onto a surface portion of the crucible contiguous with the "bath of molten evaporate" (column 2, lines 40-55).

While Dietrich's electrode 4 is said to shift the electron beams 17 and 18, *Applicants cannot find any support for the conclusion that Dietrich discloses or even suggests that Dietrich's electrode 4 could possibly force the beams 17 and 18 laterally from the molten bath 8 to the extent that they project onto the crucible 6.*

The Examiner further went on to say that

once "conveyor rod 5" (column 2, line 43) is raised the shaded region 4, Figure 2 becomes smaller and the beams 26 and 27 increase in arc length (all else constant). (Original emphasis.)

Applicants do not see the relevance in this statement, because *Dietrich does not disclose*

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nor provide any reason for raising the conveyor rod 5 to the extent that the electron beams 17 and 18 are projected onto the region of the molten bath 8 shaded by the electrode 4.

Finally, the Examiner makes repeated use of the term “capability” in alleging what Dietrich teaches, though Applicants cannot find any support that Dietrich actually teaches that the limitations in question are possible or desirable.

In his “Response to Arguments,” the Examiner dismissed Applicants’ claimed requirement that their electron beam 28 has a higher intensity at an interface of the surface of the molten ingot 26 with the crucible 56 (claim 1) and projects onto the surface 84 of the crucible 56 (claim 6), concluding that such limitations are merely an “intended use” and not a structural difference. However, claims 1 and 6 above make clear that the beam pattern shape is not an “intended use,” but is in fact a physical limitation of the invention. Specifically, Applicants claims 1 and 6 require “an electron beam gun projecting an electron beam” (emphasis added) - i.e., the claimed gun 30 is operating and projecting an electron beam 28 onto the ingot 26 and the crucible surface 84. Therefore, Applicants are not merely claiming an electron beam gun capable of projecting an electron beam - the beam itself is part of the claimed invention. The mere fact that an electron beam is not a solid structure is simply not relevant to the issue of whether a pattern generated by the electron beam is a limitation of a patent claim.

Because Dietrich does not disclose an electron beam that is projected onto the

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surface of a crucible surrounding a molten bath, Dietrich does not fulfil the requirements for anticipation under 35 USC §102. Therefore, Applicants respectfully request reconsideration and withdrawal of the rejection under 35 USC §102 on the basis of Dietrich.

With respect to the §103 rejection of claims 5 and 8, the Examiner stated that Applicants' claimed intensities at the proximal and distal points 100 and 101 of Applicants' beam pattern are obvious because "[i]t would have been obvious . . . to configure the Dietrich et al relative intensity, in percentages, as a function of position over a dimension of the crucible . . .," and that "[m]otivation for configuring the Dietrich et al relative intensity . . . is drawn to applying the electron beams 'symmetrically to the melting bath' (column 4, lines 51-55)." Applicants do not see how the symmetry of Dietrich's electron beams 17 and 18 on the molten bath 8 suggests that beam intensities at the proximal points (e.g., 36 and 37) and distal points (e.g., 30-33) of Dietrich's beam patterns 26 and 27 would be lower than elsewhere within the beam patterns 26 and 27.

Finally, and in addition to Dietrich failing to disclose or suggest that the electron beams 17 and 18 are projected onto the surface of the crucible 6, Dietrich clearly teaches away from doing so at column 1, lines 23-25. The Examiner must explain how Dietrich can be interpreted as disclosing and suggesting the capability of projecting an electron beam on a crucible when doing so is clearly contrary to Dietrich's teachings.

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In view of the above, Applicants also respectfully request reconsideration and withdrawal of the rejection under 35 USC §103 on the basis of Dietrich.

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B. Rejection based on Public Use/On-sale Bar

Under this rejection, the Examiner acknowledged Applicants' argument that their public use was experimental and therefore qualified as an exception to the public use/sale bar under 35 USC §102(b). However, the Examiner concluded:

applicant's arguments are not convincing. Experimental use "ends with an actual reduction to practice" (*RCA Corp. v. Data Gen. Corp.*, 887 F.2d 1056, 1061, 12 USPQ2d 1449, 1453 (Fed. Cir. 1989)). A machine is reduced to practice when it is assembled, adjusted and used (*Corona v. Dovan*, 273 U.S. 692, 1928 C.D. 252 (1928)). Additionally, the experimental use activity exception is personal to an applicant. In the instant application, the activity was by a third party.

Applicants respectfully disagree.

First, while "[e]xperimental use 'ends with an actual reduction to practice'," MPEP 2133.03(e)(3) clearly sets forth the *RCA* decision for the rule that "[e]xperimental use 'means *perfecting or completing* an invention *to the point of determining that it will work for its intended purpose*'" (emphasis added). *RCA*, supra. Therefore, contrary to the much earlier *Corona* decision, the *RCA* decision makes clear that an "actual reduction to practice" requires much more than simply assembling, adjusting and using a machine. Applying the *RCA* rule required by MPEP 2133.03(e)(3), Applicants' IDS establishes that their claimed EBPVD coater and the EB pattern produced thereby could not have been determined to "work for its intended purpose" prior to a meeting held on August 7,

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1998, which is less than one year before the filing date of the present application and therefore within the one-year grace period of 35 USC §102(b).

Second, the *Corona* decision is from MPEP 2138.05, which only deals with 35 USC §102(g) and does not address the issue of public use/sale under 35 USC §102(b) covered by MPEP 2133.03. Applicants respectfully assert that the Examiner cannot rely on *Corona* to support a rejection under 35 USC §102(b) when the *Corona* decision does not address 35 USC §102(b) or its issues. Applicants also respectfully assert that it is improper to rely on *Corona* when the MPEP instructs examiners to apply the 35 USC §102(b) rule set forth in the *RCA* decision, which is far more recent than *Corona*. The Examiner is respectfully urged to follow the MPEP when addressing the public use/sale issues under 35 USC §102(b), and not rely on decisions such as *Corona* that do not address the public use/sale issues and instead are limited by the MPEP to the rejections under 35 USC §102(g).

Finally, the Examiner's statement that "the experimental use activity exception is personal to an applicant" is not a actual statement of the rule to be applied according to the MPEP, but is merely a heading found in MPEP 2133.03(e)(7). This section of the MPEP states that the activity of an *independent* third party to an applicant is also a bar under 35 USC §102(b) "*unless the activity was under the supervision and control of the applicant.*" (Emphasis added.) The evidence set forth in Applicants' IDS clearly establishes that the "third party" in question, Praxair Surface Technologies, Inc.,

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(Praxair), was not an *independent* third party during the development of Applicants' claimed coater, and in any event the experimental use of the coater by Praxair was under the strict supervision and control of Applicants (General Electric Company, or GE), pursuant to MPEP 2133.03(e)(7). Specifically, Applicants' IDS establishes that the tests performed by Praxair were under the control of Applicants as a result of being specified in a Vendor Substantiation Evaluation (VSE) performed pursuant to GE's Source Substantiation Program Plan (SSPP). In addition to the control inherent in GE's SSPP and VSE, the IDS adds that "[Applicants] advised representatives of Praxair of certain critical process parameters required of the coater," i.e., GE not only controlled the experimental use of the coater with the VSE and SSPP, but also exercised supervision through the imposition of additional operational requirements above and beyond those specified in the SSPP and VSE. Finally, Applicants were present throughout Praxair's experimental use of the coater, and it was Applicants who "verif[ied] that the coater and its coating process produced acceptable coatings without damaging the blades," an event that did not occur until a meeting held on August 7, 1998, during which concerns for the performance capability of the coater were resolved by Applicants. In other words, not only did GE (Applicants) *control* and *supervise* the conditions under which the coater would be tested, but also made the ultimate "*determin[ation] that it will work for its intended purpose.*" *RCA*, *supra*.

In view of the above, according to the rule set forth in MPEP 2133.03(e)(3),

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the actual reduction to practice of Applicants' claimed coating apparatus was the result of an experimental use carried out to determine that the coater would "work for its intended purpose," and could not have occurred until after scrutiny, resolution and approval of the test results, the final step of which occurred within the one-year grace period of 35 USC §102(b). Furthermore, according to the rule set forth in MPEP 2133.03(e)(7), "the [experimental] activity was under the supervision and control of the applicant." Nowhere in Applicants' IDS is there a suggestion that "the activity was under the supervision and control" of anyone other than Applicants, and to suggest that Praxair or another third party exerted any control over the experimental use is not supported by the evidence of record.

On the basis of the two MPEP rules discussed and applied above, Applicants respectfully believe that their public use/sale falls under the experimental use exception covered by MPEP 2133.03(e), and respectfully request withdrawal of the §102 public use/on-sale rejection.

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Closing

Should the Examiner have any questions with respect to any matter now of record, Applicants' representative may be reached at (219) 462-4999.

Respectfully submitted,

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Attachment: Appendix A

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APPENDIX A
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VERSION WITH MARKINGS TO SHOW CHANGES MADE¹

In the Claims:

Claim 1 has been amended as follows:

1. (Twice amended) An electron beam physical vapor deposition coating apparatus comprising:
 - a coating chamber at an elevated temperature and a subatmospheric pressure;
 - a crucible within the coating chamber;
 - a coating material surrounded by and contained within the crucible, the coating material having a surface exposed by the crucible;
 - an electron beam gun projecting an electron beam onto the surface of the coating material, the electron beam defining a beam pattern having a higher intensity at an interface of the surface of the coating material with [and] the crucible than at a central region of the surface of the coating material.

¹ Brackets "[]" indicate deletions and underlining "___" indicates insertions.